University of Edinburgh

SBLSM32

Job Description

1. Job Details

Job title: Digital data management adviser
School / Support Department: School of Biological Sciences
Unit: Wellcome Trust Centre for Cell Biology
Line Manager: WTCCB Project Director

2. Job Purpose

To develop and implement customized tools and promote effective strategies for annotation and organisation of large and diverse primary data files, essential for all aspects of biological research in the WTCCB Project Director’s lab and in the school at large. The tools will be based on existing open source software, including Open Microscopy Environment (OME; http://www.openmicroscopy.org/) and a number of other Laboratory Information Management Systems (LIMS). The job will entail a high degree of initiative, strategic decision making and grant writing to fund the purchase of hierarchical data storage solutions as well as teaching, interaction and supervision of staff in the WTCCB Project Director’s laboratory and various other locations in the school.

3. Main Responsibilities

- Investigate how to implement Open Microscopy Environment (OME) and Laboratory Information Managements (LIMS), first in the WTCCB Project Director’s laboratory, then in the WT Centre for Cell Biology, and more broadly in other parts of the School of Biological Sciences (SBS)
- Investigate which open source LIM tools will best meet other needs
- Customize, and write applications to streamline the workflows and use of these software environments.
- Initial testing on a small group of labs followed by wide distribution, teaching and support for implementation and extension of these tools
- Interaction and synergy with other research staff to achieve these aims
- To ensuring that digital data management and annotation are of the highest quality and integrity
- Participate in strategic decisions and grant writing for large hierarchical data solutions in WTCCB and SBS.

4. Planning and Organising

The Centre Director sets the overall direction of the work of the Centre for Cell Biology, in line with the requirements of the core grant from the Wellcome Trust. This provides a long-term framework and context for the activities of the post-holder. The WTCCB Project Director, will provide more detailed directions of the activities of the post holder within the Davis laboratory and then the future expansion of the use of the tools created within the centre through its communal imaging facility, Centre Optical Instrumentation laboratory (COIL) and then more widely within SBS. The post-holder will determine a work schedule based on this contextual information and personal knowledge of the user community. The main planning is around meeting the short-term needs of users in data management as well as in the longer term, gaining an understanding of future needs. The post-holder will formulate a strategy for dealing with future data management needs from discussions with the academic community. Grant writing and procurement or development of data storage facilities will require a time-span of at least a year.

5. Problem Solving

The post holder will be expected to work independently and proactively as well as showing considerable initiative in solving a variety of technical problems, user interface issues and solving problems in management and work flow procedures. Guidance will be provided by the Line manager, and assistance in tackling policy and management difficulties within SBS will be provided by the key contacts as well as academic managers within the school.

6. Decision Making
SBSLM32WCCB

Digital data management adviser

To work with only limited guidance, showing initiative and leadership by identifying, writing and implementing new software applications, databases or other relevant technologies as appropriate in the WTCCB and other parts of SBS.

To lead, in collaboration with others, the creation of an appropriate long-term strategic for data curation, and recommend what major equipment purchases should be considered, and how to fund their purchase; how to provide wider access to data sets, images, and other issues of digital curation and archiving. The post-holder will be the expert in these discussions, taking soundings from the user community. Overall only general guidance will be given by the line manager. On short and medium term issues, the post-holder is expected to work with minimal direction. Advice will be sought from the user community and colleagues listed below as required.

The post-holder will be the main authority on digital data management within the Centre and in the School and as such their views will be seen as carrying a high level of impact. In most instances the post-holder will either be making decisions independently or presenting reports with recommendations on what action should be taken for long-term issues.

7. Key Contacts / Relationships

Internal to the Centre:
The post-holder will have to carry the respect of the academic users of the data management programs in order to influence their research activities. Excellent working relationships are key to the success of this post. The post-holder will be required to maintain these relationships in order to be in regular contact with users, so as to accurately predict the data archiving and management facilities will grow with their future requirements.

- WTCCB Project Director and members of his laboratory
- WTCCB imaging specialist,
- WTCCB bioinformatician
- WTCCB microscopy research manager
- Various groups at the WTCCB and other parts of SBS.

External to the Centre:
The post-holder must make and maintain effective relationships with other institutions worldwide where similar facilities are being developed, in order to remain current with developments in the field of data curation, and provide leading-edge technology to the Centre. The post-holder is required to have constructive relationships with commercial companies, to influence development of equipment (hardware and software), and influence opportunities for joint partnership working on developments. Key external contacts, building on existing relationships in Edinburgh.

- Wellcome Trust Biocentre, University of Dundee, UK (OME)
- Image informatics and computational biology unit, NIH, USA (OME)
- Biological Engineering, MIT, USA (OME)

8. Knowledge, Skills and Experience needed for the Job

- A first degree in science or computing
- A higher degree in computer science or equivalent industrial experience
- Experience of working with a team of researchers and a team of software developers
- An in-depth knowledge of relational database management systems including Postgresql, MySQL or equivalent
- Excellent communication skills, in particular the ability to work productively with researchers
- Demonstrable organizational and time management skills
- Detailed knowledge and experience in computer programming
- Expertise in Unix systems and their administration
- Experience of storage and annotation of diverse data and metadata
- The ability to give support for installation and choice of open source software for a diverse community
- A desire to collaborate with researchers and help them guide their work based on data management software
- A willingness and ability to learn new skills in keeping with the diversity of the post
- A proactive approach to developing the tools required
- The ability to work independently and as a member of a team
- A knowledge of Java, Perl and/or Python programming languages
- Previous experience in an internal consultancy/collaborative role
SBLSM32WCCB

Digital data management adviser

- A knowledge of HTML, XML, CSS and scripting languages
- Some familiarity with imaging methods
- Some experience of organizing/delivering training courses/tutorials

9. Dimensions
Responsibility for managing budget associated with the post. Responsibility for managing, together with other members of the Centre, large budgets of computer infrastructure for data storage (a predicted equipment budget of £500,000), which the post holder will help generate through major grant writing. Liaison with initially 10, then potentially 100 academic research staff within SBS. Liaison with other staff involving with similar activities with the University of Edinburgh and worldwide. In particular liaison with members of the OME development team, in Dundee, Harvard and Baltimore as well as communication with eDIKT project staff (see below).

10. Job context and any other relevant information
The eDIKT (e-Science Data, Information and Knowledge Transformation) project is concerned with the production of new knowledge through the application of computational science techniques to both the extraction of information from vast datasets and the generation of computational models through simulation. eDIKT has been running since May 2002, and in its initial phase applied the best research thinking in data management and databases to generate data management tools that scientists could use to help them search the vast quantities of data generated by research projects. Projects in astronomy, language processing, particle physics, computer science and genetics have all benefited from that work. From 2006, eDIKT is embarking on its next phase, with the aim of broadening its impact by developing and supporting an even wider community interested in research computing, including biomedical sciences, biology and chemistry. To this end, eDIKT is providing a team of software developers working with researchers to develop new computational tools and techniques. The project will help build and maintain new computational infrastructures at the University of Edinburgh, comprising a computer cluster, user support help desk and a user access portal. This compute cluster will be linked to similar facilities at Higher Education Institutes across Scotland with the aim of creating a Scottish Grid infrastructure.

*Please also remember to attach an Organisation chart*